Coronavirus Disease (COVID-19)

Saudi Pharmaceutical Society
الجمعية الصيدلية السعودية

WHAT IS A CORONAVIRUS?

Coronaviruses (CoVs) are a large family of single-stranded RNA viruses. These viruses can infect both humans and animals. They can cause different diseases in human including respiratory, gastrointestinal and hepatic diseases. CoVs are divided into four genera: alpha-CoV, beta-CoV, gamma-CoV and delta-CoV. Until now, there are six human CoVs have been identified, including the alpha-CoVs: HCoVs-NL63 and HCoVs-229E and the beta-CoVs: HCoVs-OC43, HCoVs-HKU1, SARS-CoV, and MERS-CoV. New coronaviruses emerge in humans because of the high prevalence of CoVs, the large genetic diversity, and the increasing of the human-animal interactions.

In December 2019, an outbreak of pneumonia of unknown cause occurred in Wuhan, China. The causative agent was identified by several independent laboratories to be a novel coronavirus which named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and its disease named as coronavirus disease 2019 (COVID-19).

This new virus is very contagious and quickly spread worldwide. As of March 11, 2020, WHO announced it as pandemic. The reported cases are increasing exponentially and as of the date publishing this statement the total confirmed cases approaching 200K in 165 territories with around 8000 deaths.

SURFACE:	Aerosols	Copper	Cardboard	Steel	Plastic
HALF-LIFE (hrs):	1	0.8	3.5	5.6	6.8

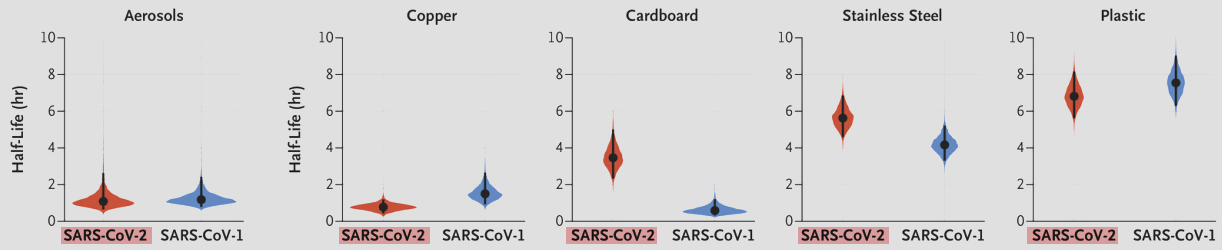

Table 1: half-lives of SARS-CoV-2 on various surfaces. (https://www.nejm.org/doi/10.1056/NEJMc2004973, last access 18/03/2020).

COVID-19

HOW CAN COVID-19 SPREAD?

Person-to-person spread:

Person-to-person spread has been confirmed in community and healthcare settings in China and other countries. Nosocomial transmission in healthcare workers and patients has been reported in 41% of patients in one case series.
The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.
- It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes.

The contribution to transmission by the presence of the virus in other body fluids is unknown; however, the virus has been detected in blood, saliva, tears, and conjunctival secretions, while fecal transmission may also be possible.

CAN AN ASYMPTOMATIC PATIENT SPREAD THE VIRUS?

People who are thought to be most contagious when they are most symptomatic (the sickest). Some people can act as super-spreaders early in the course of their infection. These individuals can pass the infection on to large numbers of contacts, including healthcare workers. This phenomenon is well documented for infections such as SARS and Ebola virus infection, and more recently with MERS. The virus that causes COVID-19 seems to be spreading easily and sustainably in the community ("community spread").

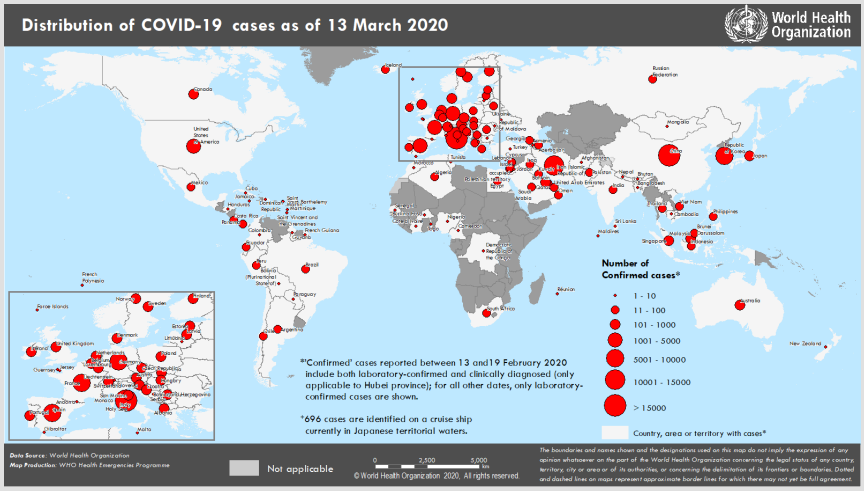

Figure . Countries, territories or areas with reported confirmed cases of COVID 19, 13 March 2020

HOW CAN COVID-19 BE DIAGNOSED?

According to the Centers for Disease Control and Prevention [CDC], the symptoms associated with COVID-19 compared to symptoms of the common cold and flu can be noticeable.
Because it affects the lungs, COVID-19 is associated with common fever, dry cough and shortness of breath with sometimes headache, aches with pain, sore throat, fatigue and rare diarrhea and runny nose with no sneezing.
Flu is associated with common fever, dry cough, headaches, aches with pain, sore throat, fatigue and sometimes diarrhea with runny nose with no sneezing and shortness of breath.
In the other side, common cold is characterized by common aches and pains, sore throat, runny nose, sneezing, with mild dry cough and sometimes fatigue, rare fever, headaches and no diarrhea and shortness of breath.

Diagnostic test:

The CDC 2019-Novel Coronavirus (2019-nCoV) Real-Time RT-PCR Diagnostic Panel is a real-time RT-PCR test intended for the qualitative detection of nucleic acid from the 2019-nCoV in upper and lower respiratory specimens.
Recently, Roche received a green light from the FDA for emergency use of its high-volume coronavirus diagnostic, the first commercially developed test to do so. The agency said it approved the test within 24 hours of receiving the application.

HOW DO WE MANAGE PATIENTS WITH CONFIRMED COVID-19?

For patients with mild symptoms of the disease, no intervention is required, but isolation is necessary to prevent the transmission to other people. In mild cases, patients can be isolated in their homes. However, patients with moderate conditions may need to be admitted to the isolation unit of the hospital whereas patients with more severe picture of the disease should be admitted to the intensive care unit. Generally, supportive care, including oxygenation, hydration and medical ventilation would be provided. Numerous antivirals and immunomodulators are being investigated for treatment of patients with severe symptoms of COVID-19. The table below discusses the most cited agents in literature.

DRUG	MECHANISM OF ACTION	STUDIED DOSE	DURATION
Hydroxychloroquine	Blocks viral infection by increasing endosomal pH needed for virus/cell fusion, and interferes with the glycosylation of virus cellular receptors	400 mg once daily	**5 days**
Chloroquine	Unknown	500 mg twice daily	**10 days**
Lopinavir/ritonavir (Kaletra)	Unknown	(400/100 mg) twice daily	**10-14 days**
Remdesivir	Nucleoside inhibitor also known as GS-5734	200 mg IV once; followed by 100 mg IV once daily	**10 days**
Ribavirin (in combination with lopinavir/ritonavir or sofosbuvir)	Inhibition of viral RNA-dependentRNA polymerase	4 g PO once followed by 1.2 g every 8 hours	**14-21 days**
Tociluzimab	Interleukin-6 blocker	400 mg IV once, then more if needed up to 800 mg max	**Once**

Note:

•THE USE OF OSELTAMIVIR (TAMIFLU) AND CORTICOSTEROIDS IS NOT RECOMMENDED DUE TO LACK OF EFFICACY REPORTED IN CLINICAL STUDIES.

•RECENT STUDY SHOWED THAT NO BENEFIT WAS OBSERVED WITH LOPINAVIR–RITONAVIR TREATMENT BEYOND STANDARD CARE.

•REMDESIVIR IS UNDER CLINICAL TRIALS.

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HOW CAN WE PREVENT THE SPREAD OF COVID-19?

There are a number of standard practices that have been recommended to protect against infection and further spread:

- Cover your mouth and nose with flexed elbow or tissue when coughing and sneezing
- Wash hands regularly and thoroughly with soap and water for at least 40 seconds especially after coughing or sneezing, going to the bathroom, and before eating. Use hand sanitizer that contains at least 60% alcohol if soap and water are not readily available
- Avoid touching your mouth, nose, eyes and face with unwashed hands
- Stay home if you feel unwell and avoid close contact with others
- Avoid large crowds and shaking hands
- Maintain distance of at least 1 meter from individuals with respiratory symptoms
- Ensure animal products are cooked thoroughly before they are consumed
- Avoid unnecessary contact with animals and wash your hands after contacting animals or animal products.
- Health care workers caring for patients with COVID-19 should wear medical mask, gloves, gown and goggle during close contact with appropriate disposal of personal protective equipment (PPE) and hand hygiene after patient care. Health care workers should use new PPE when care is given to a different patient. Health care workers should avoid touching their eyes, nose, or mouth with contaminated gloves or ungloved hands.

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THE SAUDI PHARMACEUTICAL SOCIETY MESSAGE TO PHARMACISTS:

The Saudi Pharmaceutical Society (SPS) calls on all pharmacists without exception to take care first of their safety and follow the correct methods of protection as mentioned above. Our primary goal of this guide is the safety of the health practitioner (pharmacist) as he/she is one of the most exposed health practitioners to the needs of the community for medicines and therapeutic guidance before and during any epidemic stage. Since pharmaceutical resources of medicines and medical instruments are of the neediest at this sensitive stage, the pharmacist has an active role in providing to community's therapeutic and preventive needs. Therefore, the SPS advises all pharmacists to:

- protect themselves by following the right preventive methods.
- Follow-up the latest updates in the medical field (warnings or recommendations) to reduce the spread of the epidemic, and follow up the competent official authorities represented by the Ministry of Health and related authorities.
- Ensure that the stock of medications and important medical supplies are maintained in the institution.
- Ensure that medications are dispensed in appropriate quantities to the needs of the community.
- Advice those who do not need medications and medical supplies from the community with the assurance that there are patients who need certain drugs and here lies the role of the community pharmacist in the distribution of medications.

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